UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
BEFORE THE ADMINISTRATOR

In the Matter of: :
Leed Foundry, Inc. :
Wade Road :
St. Clair, PA 17970, :
: Docket No. RCRA-03-2004-0061
Respondent. : CWA-03-2004-0061

COMPLAINANT'S PROPOSED FINDINGS OF FACT AND CONCLUSIONS OF LAW

Pursuant to 22 C.F.R. § 22.26, Complainant hereby submits her Proposed Findings of Fact and Conclusions of Law.

I. COUNTS XIV AND XV

PROPOSED FINDINGS OF FACT

1. Respondent Leed Foundry, Inc. ("Leed" or "Leed Foundry") operates a grey iron foundry located off Wade Road in St. Clair, Pennsylvania ("Leed Foundry facility" or "facility"). At its facility, Respondent produces grey iron castings, such as manhole covers and collars, from scrap iron. *Additional Stipulations of Complainant and Respondent* Nos. 2 & 3 (Nov. 1, 2005) (cited hereafter as "*Additional Stipulation* No. __"). Mr. Edward Quirin is the owner and principle of Leed Foundry.

2. The primary manufacturing process at the facility occurs in a large cylindrical vessel called a cupola. Tr. 94 (Wojciechowski). Scrap metal, coke and limestone are all mixed together in the cupola, Tr. 94 (Wojciechowski), the coke is ignited, the metals melt and drip downward through and around the coke. Tr. 95-96 (Wojciechowski). The molten metal is drawn off from the bottom of the cupola.

3. The scrap metal may contain a variety of metals, including but not limited to, lead, cadmium, molybdenum, manganese and chromium. Tr. at 94-96 (Wojciechowski).

4. The coke, in addition to adding heat, is a raw material and part of the manufacturing process. *See* Tr. 97-98 (Wojciechowski); Tr. 1094 (Quirin). For example, the melting metal interacts with the coke, absorbing some of it. Tr. 97 (Wojciechowski). In addition, the coke is necessary to create a reducing environment so as to inhibit oxidation of the metals, otherwise the product would be iron-oxide instead of the desired iron. Tr. 97 (Wojciechowski). The coke affects the physical and

chemical properties of the final product – too much coke in the cupola mix will negatively influence the nature of the product. Tr. 98 (Wojciechowski).

5. The cupola process necessarily generates air borne waste particles. These are transported through a series of ducts to a structure called a baghouse. Tr. 99 (Wojciechowski). The particles deposit themselves on the inside of bags in the baghouse. From time to time, the particles are loosened from bags in the baghouse either by impact from a pulse of air or by mechanical shaking, and they fall down into hoppers affixed to the underside of the baghouse. Tr. 102-04 (Wojciechowski); Complainant's Exhibit 6I. (Complainant's Exhibits hereafter will be cited as "CX __"). The bottoms of large hoppers affixed to the baghouse are periodically opened allowing the particles to drop into bins (sometimes called "tipping hoppers" or "tilt buckets") below. Tr. 104-05 (Wojciechowski); CX 5J; Tr. 1083-84 (Quirin).

6. Complainant asserts that the waste particles generated by the process are properly characterized as "baghouse dust." Respondent has referred to the waste as both baghouse dust and "fly ash." *Compare e.g.*, Tr. 1006 lines 6-9 (Respondent's attorney questioning Quirin about results of analyses Quirin performed on "baghouse dust) *with* Tr. 1006 lines 21-22 (Quirin responding using the term "fly ash").

7. The molten metal is made into castings using a green sand molding process. Bentonite clay and sea coal are added to sand to manufacture molding sand. The resulting sand is black in color. The molding sand is poured into molds and compressed and the mold is removed to create a cavity. The cavity is filled with iron to create a casting. Tr. 986 (Quirin).

8. The Leed Foundry facility is depicted on a topographic map prepared by Earth Data, a consultant for Leed Foundry. *See* CX 18; *see also* Stip. Ex. 3, Figure 2, page EPA 0175a.[1]

9. In addition to depicting the Leed Foundry facilities, CX 18 and Stip. Ex. 3, Figure 2, page EPA 0175a include topographic lines showing the relative elevations (in two-foot increments) of structures and other features on the Leed Foundry property and other nearby features including storm inlets and State Route 61. Tr. 446-48 (Harsh); CX 18; Stip. Ex. 3, Figure 2, page 0175a.

10. Water, including storm water, flows downhill. Tr. 753 (Harsh).

11. The Leed Foundry is located partway up a steep hillside. Tr. 446-49 (Harsh); CX 18; Stip. Ex., Figure 2, page EPA 0175a. The site is analogous to a tabletop pushed up against a wall.

12. The facility includes several buildings, including the foundry, a cupola and two baghouses (one for the iron foundry described above and a separate baghouse for sand). CX 18.

13. A roadway runs in a north-south direction along the western portion of the facility behind the buildings. That road is marked in orange on CX 18. Tr. 450-51 (Harsh). The road reaches a topographic "high" or apex on the Leed Foundry property at approximately its midpoint. From the

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[1] CX 18 and Stip. Ex. 3, Figure 2, page 175a are the same underlying topographic map. Each include markings placed by various witnesses either before or during the course of the hearing.

topographic "high," the road runs downhill to the south and to the north. Tr. 218-222 (Cox); Tr. 453-55 (Harsh).

14. In response to an Administrative Compliance Order issued by the U.S. Environmental Protection Agency Region III ("EPA") (Stip. Ex. 4), Leed Foundry retained Earth Data Northeast, Inc. to prepare a drainage map of the Leed Foundry facility. Tr. 797 & 800 (Epps). The facility was surveyed, and the topographic map that became part of CX 18 and Stip. Ex. 3, Figure 2, page 175a was generated. Tr. 799-801 (Epps).

15. The Leed Foundry facility consists of four drainage areas or zones. Drainage area 1 is located in the southwestern portion of the facility and is outlined in yellow on CX 18 and Stip. Ex. 3, Figure 2, page EPA 175a. Tr. 449 (Harsh); Tr. 802 (Epps). Drainage area 1 includes areas where raw materials, including scrap iron, limestone, and coke were stored uncovered outdoors. CX 18; Stip. Ex. 3, page EPA 0162-0163 & Figure 2, page EPA 175a; Tr. 204-06 (Cox). Storm water falling on Drainage area 1 is directed to Outfall 1. Outfall 1 is a pipe located on the southeastern portion of the facility's property. Stip. Ex. 3; Tr.803-05 (Epps).

16. Drainage area 2 is located in the southeastern portion of the facility and is outlined in purple on CX 18 and Stip. Ex. 3, page EPA 0163 & Figure 2, page EPA 175a; Tr. 449 (Harsh); Tr. 802 (Epps). Drainage area 2 includes a portion of the foundry building, a paved area containing a propane tank, a shed, and a foundry sand silo. Stip. Ex. 3, page EPA 0163. Storm water falling on Drainage area 2 is directed to Outfall 2. Outfall 2 is a pipe located in the southeastern portion of the facility's property. Stip. Ex. 3; Tr. 805 (Epps).

17. Drainage area 3 is located in the southeastern portion of the facility and is outlined in blue on CX 18 and Stip. Ex. 3, Figure 2, page EPA 175a; Tr.449 (Harsh); Tr. 802 (Epps). Drainage area 3 includes a portion of the foundry building, a small area of unpaved hillside and two concrete scales. Stip. Ex. 3, page EPA 0163. Storm water falling on Drainage area 3 is directed to Outfall 3. Outfall 3 is a pipe located in the southeastern portion of the facility's property. Stip. Ex. 3; Tr. 805-06 (Epps).

18. Outfalls 1, 2 and 3 are pipes located in the southeastern portion of the Leed Foundry facility. CX 4BB; 4CC; 4DD; 4KK; 4LL; Tr. 449-62; 508-09; 517 (Harsh); *see also* CX 18; Stip. Ex. 3, figure 2, page EPA 175a; Tr. 803-06 (Epps). Storm water shoots out of these pipes and flows down the steep hill below the pipes to a drainage ditch or swale located at the bottom of the hill and running in a southerly direction along Route 61 parallel to the Leed Foundry facility. CX 5E; 5F; Tr. 511; 517-18; 528-31 (Harsh); CX 5A; 5B; 5C; 5E; 5F. Water collected in the drainage ditch flows south toward a larger swale and then into a large inlet to the St. Clair Borough municipal separate storm sewer located slightly south and east of the Leed Foundry facility. CX 4S; Tr. 511-12; 514 (Harsh). From this inlet, storm water flows in a series of pipes through the municipal separate storm sewer and is ultimately discharged untreated to Mill Creek. CX 13; Tr. 466-79; 512-14 (Harsh).

19. Drainage area 4 is located in the northern and western portions of the facility and is outlined in green on CX 18 and Stip. Ex. 3, Figure 2, page EPA 175a; Tr. 450 (Harsh); Tr. 802 (Epps). Drainage area 4 includes the area where the baghouse and associated tipping hoppers are located. CX18 (cupola baghouse located on labeled in purple on C.Ex. 18 at area where word "rack" appears);

Tr. 232 (Cox), CX 6J (tipping hoppers located under the baghouse); *see* Tr. 1080-88 (Quirin) (dust from hoppers then moved to dust pile behind baghouse). This is also the area where the pile of baghouse dust waste is stored outdoors. Tr. 211-12 (Cox); CX 18 (baghouse dust pile denoted in blue). Storm water falling on Drainage area 4 is directed to Outfall 4. Stip. Ex. 3; Tr. 806-07 (Epps). According to the report prepared by Respondent's consultant, some storm water falling on Drainage area 4 is directed through a rock-lined channel and collected in an inlet which then directs it to Outfall 4. Stip. Ex. 3.

20. Storm water from Drainage area 4 flows to two inlets, one labeled "Outfall 4" on CX 18 and Stip. Ex. 3, Figure 2, page EPA 175a, and another inlet identified by a small square at the end of the rock-lined channel on CX 18 and Stip. Ex. 3, Figure 2, page EPA 175a. Tr. 461-63 (Harsh).

21. Outfall 4 is an inlet to St. Clair Borough's municipal separate storm sewer, as is the inlet at the bottom of the rock-lined channel in Drainage area 4. Tr. 462-63 & 465 (Harsh). Storm water entering the municipal separate storm sewer at this point flows through a series of pipes and then discharges untreated to Mill Creek. Tr. 465-66 (Harsh); Tr. 466-478 (Harsh); CX 13.

22. The Notice of Intent to be covered by Pennsylvania's general NPDES permit for discharges of storm water associated with industrial activity submitted by Respondent under oath to the Pennsylvania DEP identifies Mill Creek as the receiving water for Outfalls 1, 2, 3 and 4. Stip. Ex. 1. The Notice of Intent was submitted to comply with EPA's Administrative Compliance Order. Stip. Ex. 4.

23. In response to the Administrative Compliance Order (Stip. Ex. 4), Respondent's consultant calculated the amount and intensity of a 24-hour rainfall event that would cause storm water to be discharged from the Leed Foundry facilities through Outfalls 1, 2, 3, and 4. Stip. Ex. 6. Respondent's consultant determined that any measurable amount of rainfall in excess of one one-hundreth of an inch (0.01 inches) over a 24-hour period would result in the discharge of storm water from Drainage areas 1, 2, 3, and 4 of the Leed Foundry facility. Stip. Ex. 6. From March 25, 1999 through March 25, 2004, there were approximately 417 twenty-four hour precipitation events greater than 0.01 inches. Tr. 617-19 (Harsh).

24. Complainant's expert hydrologist, Dr. Jack Hwang, used standard hydrologic formulas to calculate the type of rainfall event that would cause storm water run-off from the Leed Foundry facility to reach the municipal separate storm sewer. Dr. Hwang was uncertain whether the calculations of Respondent's consultant referred to total rainfall or "effective" rainfall (i.e., the amount of rain in excess of the "initial abstraction" or the amount of rain that will be absorbed or intercepted by soil and other surface features). Taking a conservative approach, Dr. Hwang assumed Respondent's consultant's calculations did ***not*** account for the initial abstraction. Dr. Hwang calculated that that a rain event equal to or greater than 0.23 inches of rain over a twenty-four hour period will cause a discharge from Drainage Area 4 of the Leed Foundry facility to the storm sewer. Dr. Hwang calculated that a rain event of 0.6 inches over a twenty-four hour period will cause stormwater flowing from Drainage Areas 1, 2 and 3 of the Leed Foundry facility to discharge out Outfalls 1, 2 and 3 and from those outfalls to the muncipal storm sewer. The parties have stipulated that Dr. Hwang's calculations are more conservative than those provided by Respondent's consultant. *See* Stipulated Testimony of Dr. Jack Hwang.

25. From March 25, 1999 through March 25, 2004, there were approximately 148 twenty-four hour precipitation events greater than 0.6 inches and approximately 316 twenty-four hour precipitation events greater than 0.2 inches. Tr. 642-44 (Harsh).From March 25, 1999 through March 25, 2004, there were approximately 417 twenty-four hour precipitation events greater than 0.01 inches. Tr. 617-19 (Harsh).

26. Respondent stores raw materials, including scrap iron, coke and limestone, outdoors, uncovered and exposed to precipitation. These raw materials are stored behind the cupola baghouse adjacent to a road that runs behind the buildings at the Leed Foundry facility. These raw materials are stored at a "topographic high," meaning that from the point where the materials are stored, the adjacent roadway runs downhill both north and south. . Tr. 205-06; 210-11(Cox); CX 4C; 4F; 4G; 4J; Tr. 488-92 (Harsh); *see also* CX 18; Tr. 988 (Quirin) (generally agreeing with EPA inspectors' description of location of raw materials and baghouse dust storage).

27. Leed Foundry also stores baghouse dust behind the cupola baghouse adjacent to a road that runs behind the buildings at the Leed Foundry facility, at a "topographic high" in the road. . Tr. 211-12 (Cox).

28. The piles of baghouse dust were stored openly, i.e., uncovered, prior to April 2001. RX 9; Answer of Respondent; Tr. 1070-71 (Quirin).

29. As of EPA's September 2002 inspection, a blue tarp covered the baghouse dust. Tr. 228; CX 6A, 6B. The piles, which were as high as eight feet, were surrounded on three sides by a four-foot high concrete barrier and open to the roadway. Tr. 214 (Cox).

30. Since EPA's site inspection in September 2002, Leed has been transporting and disposing of its baghouse dust as a characteristic RCRA hazardous waste, using waste codes D0006 and D008. Removal of the baghouse dust accumulation began in December 2002 and completed no later than January 23, 2003. *Additional Stipulations of Complainant and Respondent* No. 9 (Nov. 1, 2005).

31. Between EPA's inspections of the Leed Foundry facility in September and October 2002, Leed Foundry placed a concrete "jersey" barrier between the baghouse dust piles and the adjacent roadway. When asked why the jersey barrier had been put in place, Mr. Quirin told EPA's inspector that there was a "sea of dust" flowing on the roadway during precipitation events. Tr. 258, 261 (Cox).

32. When asked about the composition of the baghouse dust by EPA's inspector, Mr. Quirin stated that it had never tested hazardous. Tr. 239-40 (Cox). Leed Foundry's response to subsequent information requests by EPA demonstrated that Leed Foundry previously had tested the baghouse dust and that levels of lead and cadmium in the baghouse dust exceeded the RCRA toxicity characteristic levels. Tr. 243-44 (C0x); CX 22.

33. Leed Foundry has known since the early 1990s that the baghouse dust contains significant levels of lead and cadmium. Tr. 1115 (Quirin).

34. The baghouse dust has been sampled and analyzed by EPA, DEP and Respondent. The baghouse dust generally has contained high levels of lead and cadmium, both when analyzed for solubility using the Toxicity Characteristic Leaching Procedure ("TCLP") and when analyzed for total metals. The results of various analyses of the baghouse dust admitted during the hearing are set forth in Tables 1a and 1b:

TABLE 1a – SAMPLES ANALYZED USING TCLP

Sample date	Sample taken by	Material Sampled	Type of analysis	Sample Id	Level of Lead	Level of Cadmium	Exhibit No.
12/12/01	Respondent*	Baghouse dust	TCLP	2002:0000335-4	6.85 mg/L	0.05 mg/L	CX 22
12/12/01	Respondent*	Baghouse dust	TCLP	2002:0000335-5	10.7 mg/L	0.06 mg/L	CX 22
12/12/01	Respondent*	Baghouse dust	TCLP	2002:0000335-6	11.3 mg/L	0.07 mg/L	CX 22
9/19/02	DEP**	Baghouse dust	TCLP	I2002046966	976 mg/L	3.37 mg/L	CX 23
9/30/02	Respondent***	Baghouse dust	TCLP	K210013-01	800 mg/L	3.7 mg/L	CX 25
10/24/02	EPA	Baghouse dust	TCLP	Pile-1, Grab-1	276 mg/L	6.28 mg/L	10/19/05 Stipulation
10/24/02	EPA	Baghouse dust	TCLP	Pile-1, Grab-2	407 mg/L	4.12 mg/L	10/19/05 Stipulation
10/24/02	EPA	Baghouse dust	TCLP	Pile-1, Comp.	515 mg/L	5.23 mg/L	10/19/05 Stipulation
10/24/02	EPA	Baghouse dust	TCLP	Pile-2, Grab-1	356 mg/L	10.2 mg/L	10/19/05 Stipulation
10/24/02	EPA	Baghouse dust	TCLP	Pile-2, Grab-2	882 mg/L	3.02 mg/L	10/19/05 Stipulation
10/24/02	EPA	Baghouse dust	TCLP	Pile-2, Comp.	926mg/L	3.9 mg/L	10/19/05 Stipulation
12/17/02▲	U.S. Liquids	Baghouse dust	TCLP	29979	210 mg/L	2.0 mg/L	CX 24
2/7/05♣	DEP	Baghouse dust	TCLP	3129 001	110 mg/L	0.426 mg/L	CX 29
2/7/05♣	DEP	sand	TCLP	3129 002	11.6 mg/L	0.023 mg/L	CX 29
2/7/05♣	DEP	Baghouse dust	TCLP	3129 003	83.3 mg/L	4.14 mg/L	CX 29

* Sampling done by Leed consultant Guimond and Associates and analysis done by Free-Col Laboratories
** Per testimony of Mr. Feher – composite sample of baghouse dust pile (Tr. 291 (Feher))
*** Per testimony of Mr. Cox (Tr. at 241-42, C.Ex. 38 (EPA sent Leed an information request letter asking, at question 6 for results of analysis of baghouse dust), Tr. at 250 (C.Ex. 25 provided to EPA in response to request))
▲Provided by facility that accepted baghouse dust from Leed. (Tr. at 246-47 (results obtained in response to EPA information request sent directly to US Liquids)).

♣Per testimony of Mr. Feher. Tr. at 313-315 (Feher took three samples, one of loose material on the ground around the tipping hoppers under the baghouse, one of sand on the ground near a sand collector, and one of baghouse dust taken from inside a tipping hopper.) Tr. at 316 (results for material on ground around tipping hoppers, i.e., sample no 3129 001, shown on C.Ex. 21 Bates No. 0314); Tr. at 316-17 (results for sand on ground near sand collector, i.e., sample no 3129 002, shown on C.Ex. 21 Bates No. 0315); Tr. at 318 (results for baghouse dust inside tipping hopper under baghouse, i.e., sample no 3129 003, shown on C.Ex. 21 Bates No. 0316). See also Tr. 349-50, 364-65 (sampling was performed in 2005).

TABLE 1B – SAMPLES ANALYZED FOR TOTAL METALS

Sample date	Sample taken by	Material sampled	Type of analysis	Sample Id	Level of Lead	Level of Cadmium	Exhibit No.
10/24/02	EPA	Baghouse dust	Total metals	Pile-1, Grab-1	136000 mg/kg	288 mg/kg	C.Ex 33A
10/24/02	EPA	Baghouse dust	Total metals	Pile-1, Grab-2	138000 mg/L	220 mg/kg	C.Ex. 33B
10/24/02	EPA	Baghouse dust	Total metals	Pile-1, Comp.	103000 mg/kg	256 mg/kg	C.Ex. 33C
10/24/02	EPA	Baghouse dust	Total metals	Pile-2, Grab-1	98300 mg/kg	249 mg/kg	C.Ex. 33D
10/24/02	EPA	Baghouse dust	Total metals	Pile-2, Grab-2	97400 mg/kg	176 mg/kg	C.Ex. 33 E
10/24/02	EPA	Baghouse dust	Total metals	Pile-2, Comp.	69,00 mg/kg	131 mg/kg	C.Ex. 33F
10/24/02	EPA	Baghouse dust	Total metals	Pile-1, Grab 3	144,000 mg/kg	274 mg/kg	C.Ex. 33G
8/19/03	EPA	Sediment	Total metals	1B	1130 ug/g	4.4 ug/g	CX 66
8/19/03	EPA	Sediment	Total metals	1C	464 ug/g	2.0 ug/g	CX 66
8/19/03	EPA	Sediment	Total metals	2	32 ug/g	9.6	CX 66
8/19/03	EPA	Sediment	Total metals	3	1530 ug/g	4.6 ug/g	CX 66

35. The levels of lead and cadmium in samples of baghouse dust analyzed using the TCLP method generally exceed the RCRA toxicity characteristic levels of 5.0 mg/L lead and 1.0 mg/L cadmium. 40 C.F.R. § 261.24; CX 24, CX 26; CX 27; CX 28; Tr. 245-47. In several instances, the levels of lead exceed the RCRA toxicity characteristic by orders of magnitude. *See Additional Stipulations of Complainant and Respondent* No. 9 (Nov. 1, 2005).

36. The levels of lead in one baghouse dust sample collected by DEP were so "shockingly" high that DEP inspector Feher double-checked with the chemist. Tr. 299 (Feher).

37. Lead and cadmium have been identified as "toxic" pollutants for purposes of the CWA by both Congress and EPA. *See* House Committee on Public Works and Transportation, *Data Relating to H.R. 3199 (Clean Water Act of 1977),* Committee Print 95-30, Table 1 – Section 307 – Toxic Pollutants (1977); 40 C.F.R. § 401.15; *see also Matter of General Motors Corp., CPC—Pontiac*

Fiero Plant, Dkt. No. CWA-A-O-011-93 (June 28, 1996) (Hoya, ALJ), *aff'd,* 7 E.A.D. 465 (1997), *petition for review denied by* 168 F.3d 1377 (D.C. Cir. 1999).

38. Lead and cadmium are identified the priority list, developed by EPA and the Department of Health and Human Services pursuant to the Superfund Amendments and Reauthorization Act, of 100 substances most commonly found at National Priority List Sites and which the agencies detemined pose the most significant potential threat to human health. Both lead and cadmium are listed in priority group 1. *See* 52 Fed. Reg. 12866, 1269 (April 17, 1987).

39. The roadway and areas surrounding the baghouse were extremely dusty. The dust was sufficiently deep that vehicles made tracks, and the EPA inspectors could not see the pavement underneath the dust. Tr. 227 (Cox); CX 6B; CX 4C; 4F; 4J; 4O; 4GG;4MM; 4NN; CX 5J; CX 5M; CX 5N; CX 5O; ; CX 5P; CX 5Q; Tr. 485-86; 487-88; 489; 491-92; 505-07, 534-46 (Harsh).

40. One source of dust was the "Tipping hoppers " into which the baghouse waste was deposited. These hoppers had an opening at the top, through which dust escaped. There was no containment around the tipping hoppers to prevent dust from migrating to the roadway and elsewhere. Tr. 231-36 (Cox); CX 6J; CX 6K.

41. Leed Foundry implemented virtually no controls on the discharge of storm water from its facility.

42. While the Leed Foundry owned two street sweepers, Respondent did not develop or implement a regular schedule for use of the street sweepers. Tr. 429 (Harsh). The area around the baghouse was not swept daily. Tr. 1178-79 (Quirin).

43. Each inspector who testified described the housekeeping conditions at the Leed Foundry as among the worst that he had seen. Tr. 239 (Cox); Tr. 259 (Cox); Tr. 285 (Feher); Tr. 620-21 (Harsh).

44. Despite the fact that the dust on the ground near the baghouse was similar in appearance to baghouse dust (Tr. 222-25, 233-35 (Cox)), Mr. Quirin tried to persuade DEP's inspector that the material was ordinary sand. Tr. 311-15 (Feher).

45. Analysis of the chemical and physical properties of the material on the ground near the baghouse demonstrate that the material contained high levels of lead and cadmium and was physically similar to baghouse dust. Tr. 316-18 (Feher); CX 21; Tr. 863-87 (Hennessy); CX 31I; CX 31J; CX 31M; CX 31N; CX 31C; CX 31D.

46. Precipitation falling on raw materials and baghouse dust stored outdoors can pick up pollutants from those materials and wash onto the road, downhill into the storm inlets, and out the Outfalls. Tr. 418-19, 490-92, 538-39 (Harsh). *See also* CX 32D; Tr. 304-08 (Feher) (Mr. Feher observed and photographed black sand being washed into the storm inlets when it was raining).

47. Storm water discharged from the Leed facility contains high levels of lead, cadmium and other pollutants:

TABLE 2

Outfall	Pollutant	Concentration	Sample Type	Date
1	BOD*	7,800 ug/L	Grab (1 sample)	11/19/03
	Barium	120 ug/L		
	Cadmium	9 ug/L		
	Arsenic	10.4 ug/L		
	Mercury	1.71 ug/L		
	Lead	3,500 ug/L		
	pH	7.01		
	TSS**	192,000 ug/L		
2	Barium	44 ug/L	Grab (1 sample)	11/19/03
	Lead	28 ug/L		
	pH	7.07 ug/L		
3	BOD*	8,600 ug/L	Grab (1 sample)	11/19/03
	Barium	46 ug/L		
	Cadmium	4 ug/L		
	Lead	38 ug/L		
	pH	7.12		
	TSS**	12,000 ug/L		
4	BOD*	5,900 ug/L	Grab (1 sample)	11/19/03
	Barim	45 ug/L		
	Cadmium	5 ug/L		
	Lead	27 ug/L		
	Oil & grease	4,700 ug/L		

Outfall	Pollutant	Concentration	Sample Type	Date
	pH	7.21		

*Biological Oxygen Demand
**Total Suspended Solids
Source: Stip. Ex. 1.

48. EPA's action level for lead in drinking water is 0.015 mg/L. *See* 40 C.F.R. § 141.80; Tr. 816 (Epps).

49. EPA's maximum contaminant level for cadmium in drinking water is 0.005 mg/L. *See* 40 C.F.R. § 141.62.

50. To convert micrograms per liter (ug/L) to milligrams per liter (mg/L), one would divide by 1000, or move the decimal 3 places to the left.

51. Analysis of solids located near storm water inlets on or near the Leed Foundry and inlets to the St. Clair municipal separate storm sewer demonstrate those solids contain high levels of lead and cadmium. CX 66; Tr. 523-33 (Harsh). Physical evidence at the sampling locations indicate that those locations received storm water flow from the Leed Foundry. Tr. CX 5A; 5B; 5C; 5E; 5F; 5G; 5I; Tr. 511, 517-18; 528-33, 768-69 (Harsh).

52. Lead is a particularly toxic substance because it has the ability to interact with many cellular structures. Tr. 909-910 (Prince). Lead exposure results in blood pressure elevation, kidney disease and nervous system impairment at blood levels as low as 20-30 micrograms per deciliter ("ug/dl"). Tr. 911-913 (Prince). Serious kidney disease occurs at approximately 50 ug/dl, and frank neurotoxic effects occur at 40 to 120 ug/dl.

53. Any level of lead in the bloodstream of children will have deleterious effects. Tr. 915 (Prince).

54. Lead affects birds and mammals much as it does humans by targeting the kidney and the nervous system. Tr. 916 (Prince).

55. EPA has identified levels of concern for lead in soil. For residential settings this is 400 milligrams of lead per kilogram ("mg/kg") of soil and for industrial settings it is 750 mg/kg. Tr. 925 (Prince).

56. EPA has identified no-effect soil levels for lead of 11 mg/kg for birds and 56 mg/kg for mammals. Tr. 916-17 (Prince).

57. Lead negatively affects plants by inhibiting cell growth and function, including photosynthesis. Tr. 916 (Prince).

58. Lead is very toxic to aquatic organisms, and EPA has identified a criterion continuous concentration of 0.0025 milligrams per liter ("mg/l") for lead. It is one of the lowest water quality criteria set by EPA. Tr. 917 (Prince).

59. Lead in aquatic sediment can adversely affect benthic aquatic organisms, and toxicologists have identified 128 mg/kg as the level of lead in aquatic sediment that is likely to have an adverse effect on those organisms.

60. The amount of lead in the baghouse dust itself ranged up to 69,000 mg/kg to 144,000 mg/kg. Tr. 919-20 (Prince); Tr. 391-97 (Fellinger); CX33. This is many orders of magnitude above the 400 – 750 mg/kg level for humans, the 11 mg/kg level for birds and the 56 mg/kg level for mammals. Similarly, the levels of lead in soil at the site were as high as 1,130 mg/kg and 1,530 mg/kg. Tr. 605-07 (Harsh); *see* Table 3 *supra*. See also, Tr. 921 (Prince) (units of micrograms per gram, i.e., ug/g, are equivalent to units of mg/kg. Both measures amount to parts per million, i.e., ppm). These levels of lead present a likelihood of risk to humans. Tr 926-27 (Prince).

61. Movement of lead laden materials down hill from the Leed Foundry pose a likely risk to birds and small mammals on that hill. Tr 930 (Prince).

62. The levels of lead in discharges from Leed Foundry pose a potential risk to the aquatic organisms in Mill Creek. Tr. 934-39 (Prince).

63. Storm water that discharges from the Leed facility flows to Mill Creek through the St. Clair municipal separate storm sewer. Stip. Ex. 1;

64. Mill Creek is a tributary of the Schuylkill River. Additional Stipulations of Complainant and Respondent No. 6 (Nov. 1, 2005).

65. On November 19, 2003, Leed Foundry discharged storm water associated with industrial activity without an NPDES permit. Stip. Ex. 1.

66 From March 25, 1999 to March 25, 2004, Leed Foundry discharged storm water associated with industrial activity without an NPDES permit on between approximately 148 and 417 occasions.

67. Leed Foundry was not diligent in controlling its storm water discharges. To the contrary, Leed Foundry has implemented only the most minimal controls and only when directed to do so by a regulatory agency.

68. Mr. Quirin had been informed in the 1990's that Leed Foundry needed an NPDES permit for the discharge of storm water associated with industrial activity. Tr. 999, 1149 (Quirin).

69. Prior to February 23, 2004, Leed Foundry had neither applied for nor obtained an NPDES permit for the discharge of storm water associated with industrial activity. *Additional Stipulations of Complainant and Respondent* No. 5 (Nov. 1, 2005).

70. The economic benefit to Respondent from its CWA violations is $24,843. Tr. 598-99 (Harsh).

71. Leed Foundry has an ability to pay a penalty of $157,500.

CONCLUSIONS OF LAW

1. The purpose of the CWA (33 U.S.C. §§ 1251-1387) is to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." 33 U.S.C. § 1251(a). To that end, Section 301(a) of the CWA, 33 U.S.C. § 1311(a), prohibits the discharge of any pollutant (other than dredged or fill material) by any person except in compliance with, *inter alia*, permits issued pursuant to the NPDES program under Section 402 of the Act, 33 U.S.C. § 1342.[2]

2. The CWA defines the term "discharge of a pollutant" to include "any addition of any pollutant to navigable waters from any point source." 33 U.S.C. § 1362(12).

3. "Navigable waters" means "waters of the United States, including the territorial seas." *Id.* § 1362(7).

4. EPA has issued regulations further defining "waters of the United States" as including "[a]ll waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to ebb and flow of the tide" and their tributaries. 40 C.F.R. § 232.2. Discharges to waters of the United States include discharges through municipal separate storm sewers that discharge directly to waters of the United States. *See, Hartsell v. United States*, 127 F.3d 343, 348 (4th Cir. 1997) ("Several courts, including the Supreme Court and this court, have held that Congress clearly intended to regulate pollutant discharge into sewer systems and other non-navigable waters through the CWA ...."); *see also United States v. Deaton,* 332 F.3d 698 (4th Cir. 2003), *cert. denied,* 541 U.S. 972 (2004) (discharge to man-made drainage ditch that flowed through culvert under a road to a second ditch that eventually flowed to natural water body was a discharge to waters of the United States); *Headwaters, Inc. v. Talent Irrigation District*, 243 F.3d 526, 533-34 (9th Cir. 2001) (man-made conduits such as irrigation canals are tributaries and therefore discharges to such conduits are discharges to waters of the United States); *see also* Stip. Ex. 2, page EPA 0898 (permit includes dischartes to surface waters, "including to municipal separate storm sewers").

5. The term "pollutants" includes, inter alia, solid waste, incinerator residue, chemical wastes, wrecked or discarded equipment, and industrial waste. *Id.* § 1362(6).

6. Section 502(13), 33 U.S.C. § 1362(13), defines "toxic pollutants" as "those pollutants, or combinations of pollutants, including disease-causing agents, which after discharge and upon exposure, ingestion, inhalation or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will, on the basis of information available to the Administrator, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological

[2] Or in the case of the discharge of dredged or fill material, except in compliance with a permit issued by the U.S. Army Corps of Engineers under Section 404(a) of the Act, 33 U.S.C. § 1344(a).

malfunctions (including malfunctions in reproduction) or physical deformations, in such organisms or their offspring."

7. Section 502(14) of the CWA, 33 U.S.C. § 1362(14), defines "point source" to include "any discernible, confined and discrete conveyance . . . from which pollutants are or may be discharged." Rills, fissures, or other results of concentrated flow of water also may be considered point sources. *See Parker v. Scrap Metal Processors, Inc.*, 386 F.3d 993, 1009 (11th Cir. 2004).

8. Congress enacted the Water Quality Act of 1987, Pub. L. No. 100-4, 101 Stat. 7 (1987) (codified in scattered sections of Title 33 of the United States Code). Among other things, the Water Quality Act of 1987 added Section 402(p), 33 U.S.C. § 1342(p), which established a framework for regulating the discharge of storm water. For purposes of the NPDES program, "storm water" is "storm water runoff, snow melt runoff, and surface runoff and drainage." 40 C.F.R. § 122.26(b)(13).

9. Section 402(p) (33 U.S.C. § 1342(p)), established deadlines for NPDES permit applications for certain storm water discharges ("Phase I discharges"), action by EPA or the states on permits, and implementation of permits. Phase I discharges were subject to NPDES permitting requirements and include discharges of storm water associated with industrial activity. Section 402(p) states that NPDES permits for discharges associated with industrial activity "shall" meet all applicable provisions of Section 301, including technology-based and water quality based effluent limits. 33 U.S.C. § 1342(p)(3).

10. Among other things, 40 C.F.R. § 122.26 requires an NPDES permit for any discharge associated with industrial activity. The Phase I regulations define eleven categories of industrial activities, including but not limited to, storm water discharged from facilities classified as Standard Industrial Classification ("SIC") 33. 40 C.F.R. § 122.26(b)(14)(ii).

11. SIC 33 refers to primary metals industries, including grey iron foundries such as the Leed Foundry. *See Additional Stipulations of Complainant and Respondent* No. 4; *see also Notice, Final National Pollutant Discharge Elimination System Storm Water Multi-Sector General Permit for Industrial Activities*, 60 Fed. Reg. 50805, 50877 (Sept. 29, 1995).

12. EPA has authorized the Pennsylvania Department of Environmental Protection ("DEP") to implement the NPDES program in the Commonwealth of Pennsylvania. Thus, the NPDES permitting authority in Pennsylvania is DEP. Tr. 421 (Harsh).

13. While, NPDES permits for the discharge of storm water associated with industrial activity may contain numeric effluent limits, such permits control the discharge of storm water primarily by requiring the permittee to develop and implement best management practices in a plan called a Storm Water Pollution Prevention Plan ("SWPPP"). Stipulated Exhibit 1, page 0895; Stip. Ex. 2, page EPA 0920; Tr. 428 (Harsh). DEP's permits use the term "Preparedness, Prevention and Contingency Plan" ("PPC") to refer to the required SWPPP. Tr. 438; 550-53 (Harsh).

14. Holders of NPDES permits for the discharge of storm water associated with industrial activity are expected to describe potential sources of storm water discharge, assess reasonable best

management practices, and implement practices to reduce the pollutants in storm water discharges from the facility. Stip. Ex. 2, page 0902; *see also* 60 Fed. Reg. at 50883.

15. The standard of proof in this administrative proceeding is the preponderance of the evidence. 40 C.F.R. § 22.24(a).

16. Respondent is a "person" as defined in CWA § 502(5), 33 U.S.C. § 1362(5). *Additional Stipulations of Complainant and Respondent* No. 1 (Nov. 1, 2005).

17. Mill Creek and the Schuylkill River are waters of the United States within the meaning of 33 U.S.C. § 1362(7). *Additional Stipulations of Complainant and Respondent* No. 6 (Nov. 1, 2005).

18. Storm water associated with industrial activity, lead and cadmium discharged from the Leed Foundry are pollutants within the meaning of 33 U.S.C.. § 1362(6).

19. Lead and cadmium discharged from the Leed Foundry are "toxic pollutants" within the meaning of 33 U.S.C. § 1362(13).

20.. Respondent Leed Foundry, Inc. was required to apply for and obtain an NPDES permit for the discharge of storm water associated with industrial activity prior to March 25, 1999.

21. Leed Foundry violated Sections 301(a) and 402(p) of the CWA, 33 U.S.C. § 1311(a) & 1342(p), by failing to apply for and obtain an NPDES permit for the discharge of storm water associated with industrial activity until March 25, 2004.

22. For purposes of this proceeding, there were 1,820 days on which Leed Foundry was required to apply for and obtain an NPES permit for the discharge of storm water associated with industrial activity and failed to do so.

23. Leed Foundry, Inc. violated Sections 301(a) and 402(p) of the CWA, 33 U.S.C. § 1311(a) & 1342(p), by discharging storm water associated with industrial activity without an NPDES permit from March 25, 1999 to March 25, 2004.

24. The courts have recognized that an exact calculation of economic benefit often is not achievable. Accordingly, it is sufficient that the Court determine a reasonable approximation of economic benefit. *See, e.g., United States v. Smithfield Foods, Inc.*, 191 F.3d 516, 529 (4th Cir. 1999), cert. denied, 531 U.S. 813 (2000)("the precise economic benefit a polluter has gained by violating its effluent limits may be difficult to prove, so '[r]easonable approximations of economic benefit will suffice'") (citation omitted); *Public Interest Research Group of New Jersey v. Powell Duggryn Terminals, Inc.*, 913 F.2d 64, 80 (3d Cir. 1990), *cert. denied,* 498 U.S. 1109 (1991); *United States v. Municipal Authority of Union Twp. and Dean Dairy Products Co.*, 929 F. Supp. 800, 806-07 (M.D. Pa. 1996), *aff'd,* 150 F.3d 259 (3d Cir. 1998); *Matter of Ray and Jeanette Veldhuis*, Docket No. 9-99-0008 (June 24, 2002 Gunning), *aff'd* 11. E.A.D. __ (CWA App. No. 02-08) (Oct. 21, 2003).

25. A penalty in excess of economic benefit should be assessed to provide appropriate deterrence. *See Student Public Interest Research Group of N.J. v. Monsanto*, 29 ERC 1078, 1090

(D.N.J. 1988) (1988 WL 156691 at *14) ("To simply equalize the economic benefit with the penalty would serve ill the possibility of discouraging other and future violations. Some additional penalty should be imposed as a sanction"); *Smithfield Foods, Inc.*, 972 F. Supp. at 352; *see also Tull v. United States*, 481 U.S. 412, 422 (1987) ("Congress wanted the district court to consider the need for retribution and deterrence in addition to restitution, when it imposed civil penalties"); *United States v. Gulf Park Water Co., Inc.*, 14 F. Supp. 2d at 862-63.

26. Substantial penalties can and should be awarded based on the toxicity of the discharge and the risk or potential risk of harm to the environment; a showing of actual harm to the receiving stream is not necessary. *Smithfield Foods, Inc.*, 972 F. Supp. at 344; *United States v. Gulf Park Water Co.*, 14 F. Supp. 2d at 862 ("Although no evidence was presented of actual harm, the evidence was more than ample to establish that the violations committed by these defendants over a period of more than twelve years were serious. There is undisputed evidence of potential harm to the public health and the environment posed by the discharges of pollutants by the defendants"); *United States v. Municipal Authority of Union Twp. and Dean Dairy Products, Co.*, 929 F. Supp. at 807; *Natural Resources Defense Council, Inc. v. Texaco,* 800 F. Supp. 1, 24 (D. Del. 1992), *aff'd in part and reversed in part on other grounds,* 2 F.3d 493 (3d Cir. 1993).

27. Among the factors in considering a violator's culpability are the violator's experience with the relevant CWA permitting requirements, degree of control over the violation, the foreseeability of the events that constitute the violation, precautions taken to prevent the events that constitute the violation, knowledge of hazards associated with the violation, and good faith diligence in reporting violations and fixing the problems. *See In re C.W. Smith, Grady Smith & Smith's Lake Corp.*, Dkt. No. CWA-04-2001-1501 (ALJ Biro July 15, 2004).

28. Based on the nature, circumstances, extent and gravity of the violations; the culpability, history of violations and ability to pay the penalty of the Respondent; Respondent's economic benefit from the violations; and other factors as justice may require, a penalty of $157,500 is appropriate for the CWA violations alleged in Counts XIV and XV of the Complaint.

COUNTS I-XIII

Findings of Fact

1. Respondent owns and operates a grey iron foundry in St. Clair, Pennsylvania.

2. The primary manufacturing process at the facility occurs in a large cylindrical vessel called a cupola. Tr. 94. Scrap metal, coke and limestone are all placed, unsegregated, into the cupola, tr. 94, the coke is ignited, the metals melt and as they do they drip downward through and around the coke. Tr. 95-96.[3]

3. The coke is part of the manufacturing process. The melting metal interacts with the coke, absorbing some of it. Tr. 97. The coke is necessary to create a reducing environment so as to inhibit oxidation of the iron, otherwise the product would be iron-oxide instead of the desired iron. Tr.

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3 At an operation like Leed Foundry, the material charged into the cupola to be processed is not simply "iron." It is scrap and so contains a variety of other metals such as lead, cadmium, molybdenum, manganese and chromium. Tr. 94-95.

at 97. The coke affects the physical and chemical properties of the final product – too much coke in the cupola can impart unwanted characteristics to the product. Tr. 98 (for example, product may end up with too much sulfur in it).

4. The cupola process necessarily generates air borne waste particles. These are transported through ductwork to an air pollution control device called a baghouse. Tr. 99. The particles deposit themselves on the inside of the bags in the baghouse. From time to time, the particles are loosened from bags in the baghouse either by impact from pulse of air or by mechanical shaking, and they fall down into hoppers affixed to the underside of the baghouse. Tr. 102-04, C.Ex. 6I. The bottoms of large hoppers affixed to the baghouse are periodically opened allowing the particles to drop into bins (sometimes called "hoppers" or "tilt buckets") below. Tr. 104-05, C.Ex 5J. *See* Tr. 323, C.Ex. 6J ("hoppers"); tr 1080-81, C.Ex. 6J ("tilt buckets").

<u>Conclusions of Law</u>

1. Respondent's cupola baghouse waste is not generated primariliy from the combustion of fossil fuel.

Respectfully submitted,

Date: 1/30/06

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/s/ KN
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